

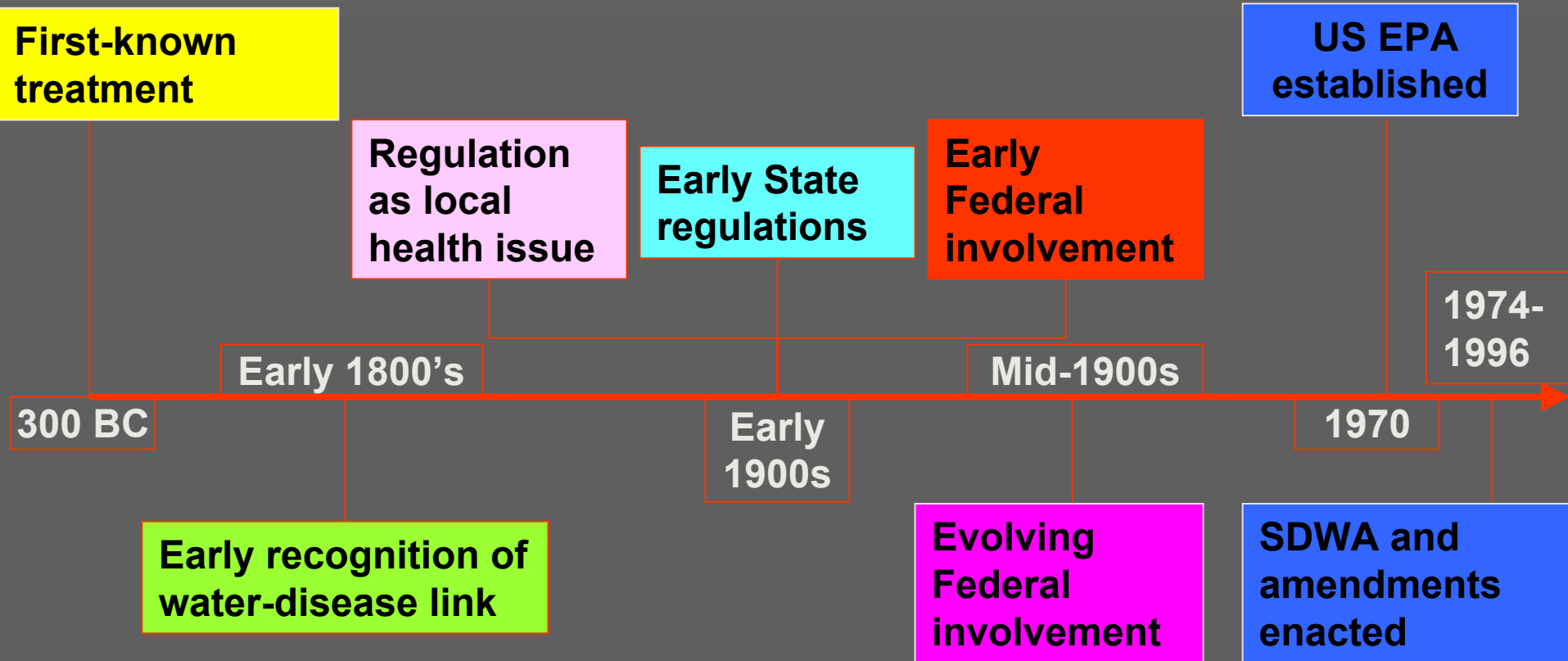
Overview of the Kentucky Drinking Water Program

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Introduction

- ➡ The Kentucky Drinking Water program oversees the regulation and control of the purification of water for all public and semipublic use.
- ➡ Primary mission is to protect public health.
- ➡ There are currently 562 public water systems and 70 semipublic water systems in Kentucky.

History of Drinking Water Regulation



History of Drinking Water

- 1800s - Acute water-borne diseases prevalent, e.g. cholera, typhoid fever.
- 1880 – Louis Pasteur demonstrated “germ theory” of disease, which explained microbes transmit disease through water.
- 1880 – Disease epidemics linked to explosive increase in urbanization and water supply led to the establishment of the public health movement
- 1886 – Massachusetts legislature passed one of the first Acts to protect public health in water supply systems. They, also, introduced slow sand filtration in pretreatment following the lead of European investigators fighting cholera and typhoid fever, particularly in London, England.
- 1870 – Filtration of water adopted throughout the United States. Typhoid death rate significantly dropped. Filtration became commonplace as pretreatment in water supply systems.

History of Drinking Water

- 1890 – Louisville Water Company demonstrated a combined process of sedimentation and pretreatment considerably reduced turbidity, and subsequently reduced waterborne diseases.
- 1908 – Chlorination introduced in Jersey City, New Jersey. Became the greatest step in the reduction of waterborne diseases in water supply. Marked as the most significant public-health achievement of this century because it helped eliminate deaths from cholera and typhoid transmitted in water supply.
- 1914 – First federal drinking water standards adopted, administered by the U.S. Public Health Service (PHS).
- 1950s – Conventional treatment in water systems consisted of coagulation, filtration and chlorination.

History of Drinking Water

- 1962 – The 1914 PHS standards revised to regulated 28 contaminants. Published in the Federal Register on March 6, 1962. All 50 states accept the standards as either guidelines or regulations.
- 1965 – Became apparent that aesthetic problems, pathogens and chemicals identified by PHS were not the only drinking water concerns. New manmade chemicals were imposing a negative effect on public health. Chlorine, itself, was suspected of creating human health problems.
- 1974 – Chemical contamination and public health gained the attention of Congress. Led to the passage of the 1974 Safe Drinking Water Act (SDWA) giving US. Environmental Protection Agency (EPA) oversight and control. SDWA amended in 1986 and 1996.

Authority – Safe Drinking Water Act (SDWA)

- ➔ The SDWA enacted in 1974 and was amended in 1986 and 1996.
- ➔ SDWA is a regulatory mechanism to create and distribute safe drinking water to the public.
- ➔ SDWA aims to ensure that public water suppliers meet national standards that protect consumers from harmful contaminants in drinking water.

The Regulatory Process

- ➡ EPA sets enforceable quantitative limit on contaminants. These limits are called the Maximum Contaminant Level or MCL. Currently, there are about 80 contaminants that are monitored.
- ➡ Drinking water supply systems must monitor and test for these contaminants and provide monthly reports to the state.

Sensitive Subpopulations

- ➔ A group that is at greater or increased risk of some adverse health (medical) problem after exposure to a contaminant.
- ➔ Examples include babies, children, pregnant women, elderly, and immunosuppressed individuals from chronic diseases.

Sensitive Subpopulations

- ➔ When MCLs are set by EPA and the National Academy of Science, sensitive subpopulations are given full consideration.
- ➔ EPA has independently identified children as a subpopulation that will receive additional focus.
- ➔ Established the Office of Children's Health Protection to coordinate these efforts.

SDWA Rules

- ➔ Primacy is the first-line authority for enforcing the federal requirements.
- ➔ States are required to draft applications for primacy for program updates and submit them to the US EPA Regional Office.
- ➔ Each rule must be adopted by the state.
- ➔ Final Primacy revision applications for program updates are then submitted.

SDWA Rules for Primacy

- New Public Water System Definitions
- Administrative Penalty Authority
- Lead and Copper Rule
- Public Notification Rule
- Radionuclides Rule
- Arsenic Rule
- Operator Certification Program
- Consumer Confidence Reports
- Interim Enhanced Surface Water Treatment Rule
- Stage 1 Disinfectants/Disinfection By-Products Rule
- Filter Backwash Recycling Rule
- Long-Term 1 Rule
- Variance and Exemptions Rule

More SDWA Rules/Programs

- ⇒ Long-Term 2 Enhanced Surface Water Treatment Rule
- ⇒ Stage 2 Disinfectants/Disinfection By-Products Rule
- ⇒ Groundwater Rule
- ⇒ Radon Rule
- ⇒ Capacity Development Program (Guidance)
- ⇒ Drinking Water Source Protection
- ⇒ Drinking Water State Revolving Fund
- ⇒ Chemical and Microbiological Laboratory Certifications



How does this work in Kentucky?

Many, many agencies cooperating at the
state and local levels...



The Regulatory Process - Applicability

➡ **FEDERAL:** Public Water System (serves more than 25 people or 15 service connections at least 60 days of the year).

- Community Water System (year round customers)
- Noncommunity Transient Water System (not year round)
- Noncommunity Nontransient Water System (not year round)

➡ **STATE:** Semipublic Water System (serves more than 3 residents but less than 25 people or 15 service connections).

Planning

Plans Review:
Treatment,
Distribution

Compliance
Monitoring

Enforcement

Evaluations

DWB Organization

➡ The Drinking Water Branch has 34 positions divided into 4 sections:

- Facility Planning and Compliance
- Technical Assistance and Outreach
- Distribution
- Permits and Plans Review

Facility Planning and Compliance

➤ Responsible for:

- Process about 16,000 monthly analytical results for compliance monitoring (including Monthly Operating Reports)
- Compliance determinations
- Initial review for potential Drinking Water State Revolving Fund (DWSRF) loan projects,
- Database management (inventory of water systems)
- Process Freedom of Information Act requests
- Enforcement referrals...

The Regulatory Process – Enforcement

- ⇒ If test results show a contaminant is above the MCL, a violation can result.
- ⇒ Violations are to be reported to the public through specified public notification procedures.
- ⇒ Water systems work towards returning to compliance.
- ⇒ Failure to return to compliance leads to further enforcement action by the state and/or EPA.

Public Right to Know

- ⇒ Violations are to be reported to the public through specified public notification procedures.
- ⇒ Water systems create annual reports each July to consumers about the quality of the drinking water. These reports are called Consumer Confidence Reports.

Technical Assistance and Outreach

➞ Responsible for:

- Website development
- Sanitary survey coordination
- Performance based training
- Area-Wide Optimization Program
- Processing chemical change requests
- Technical assistance visits...

The Regulatory Process - Evaluation

➞ Inspections/Incidents/Notifications

- 10 regional offices across Kentucky (coordinates boil water issues and consumer advisories)

➞ Sanitary Surveys

- Evaluates: sources; treatment; distribution system; finished water storage; pumps, pump facilities and controls; monitoring, reporting, and data verification, system management and operation; and operator certification compliance.

The Regulatory Process – Infrastructure Improvements

- Any changes for sanitary features of design for an existing system or proposed new system must be submitted for review.
- Construction without proper approval is a state violation.
- Approximately 1450 construction plans and specifications are submitted annually.

Distribution

- Review engineering plans and specifications on all distribution systems changes
 - Process about 90% of plans submitted.
- Project management of distribution loan projects under the DWSRF and Congressional grant projects ...

Permits and Plans Review

- Review engineering plans and specification on all changes not primarily distribution related
- Project management of non-distribution loan projects under the DWSRF and Congressional grants
- Environmental reviews for DWSRF loan Congressional grant projects
- Coordination of Sanctions (Waterline and Tap-on)
- Process Federal Assistance Review applications...

The Regulatory Process - Operation

- ➔ All new community and nontransient, noncommunity water systems may only be formed if they can demonstrate financial, managerial, and technical capacity with respect to the national primary drinking water regulations when beginning operations. This is part of the Capacity Development Program.

The Regulatory Process – Treatment Requirements

➡ Surface Source– Complete treatment

- Flocculation
- Sedimentation
- Filtration
- Disinfection

➡ Ground Source– Disinfection

- 30 minute minimum disinfectant contact time

The Regulatory Process – Other Determinations

- ⇒ Groundwater Under the Direct Influence of Surface Water
- ⇒ Source Water Protection
 - Groundwater – Wellhead Protection Program
 - Surface Water – Delineations, Assessments, and Contamination Prevention
- ⇒ Capacity Development for Existing Systems

The Regulatory Process – Other Program/Permit Requirements

- ⇒ Water Withdrawal Permit
- ⇒ KPDES Permit – wastewater discharge
- ⇒ 401 Certification – wetlands, stream disturbances, endangered species
- ⇒ Floodplain Permit – any construction within a floodplain

Resources

- ⇒ Drinking Water Regulation and Health by Frederick Pontius, 2003. ISBN #0-471-41554-5
- ⇒ EPA Safewater Web site:
<http://www.epa.gov/safewater/>.
- ⇒ Safe Drinking Water Hotline: 1 (800) 426-4791
- ⇒ Kentucky Division of Water Web site:
<http://water.nr.state.ky.us/dow/dwhome.htm>.